REMARKS

Administrative Overview

After the entry of the Preliminary Amendment of December 9, 2005, claims 14–29 were pending in this case. In the Office Action mailed on July 10, 2009, claims 14–29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,525,853 (hereinafter "Stuart") in view of U.S. Patent No. 6,064,786 (hereinafter "Cunningham").

We respectfully traverse this rejection and request reconsideration of the claims in light of the arguments below.

Rejection of Claims 14–29 under 35 U.S.C. § 103(a) over Stuart in view of Cunningham

All of the pending claims in this case were rejected as obvious over Stuart in view of Cunningham. We respectfully disagree.

A proper rejection of claims as prima facie obvious over a combination of prior art references requires that one of ordinary skill in the art have a reasonable expectation of success of making that combination. See MPEP § 2143.02. Here, there is no such reasonable expectation of success because the combination of Stuart with Cunningham would render Stuart unsuited to its intended purpose and otherwise change its principle of operation. See MPEP § 2143.01. Therefore the proposed combination is improper and all of the pending claims are allowable.

As described in the specification, the present invention relates to an optical communication system using multimode fibres that connect compartmentalized spaces such as office buildings. See Application at Abstract. Prior art systems utilize either single-mode fibre or multimode fibre where the modulated signal is downconverted to be in the fibre's bandwidth, i.e., the bandwidth specified for baseband transmissions. See Application at p. 2, ln. 3–6. It is also known that offset launch can be used for successful baseband transmission in virtually all multimode fibres. See Application at p. 3, ln. 8–10.

However, the prior art does not teach or suggest that offset launch can be used for successful transmission outside the multimode fibre's baseband frequency range. Accordingly, both independent claims 14 and 22 require, among other limitations: (1) coupling a signal into a multimode fibre using an offset launch, and (2) that the signal be a RF-modulated signal.

The Office Action relies on Stuart for the coupling of an RF-modulated signal into a multimode fibre, and concedes that Stuart does not teach or suggest the use of an offset launch. See Office Action at 3. The Office Action relies on Cunningham for the use of an offset launch. See Office Action at 3. The Office Action claims that both Stuart and Cunningham concern "optical communication" and that one of ordinary skill would be motivated to make their combination to enhance the bandwidth and modal noise of performance of a multimode optical fibre communication system. See Office Action at 3.

Stuart concerns RF-frequency transmissions and the use of multiple modes in a fibre to carry data while Cunningham concerns baseband frequency transmissions and the restriction of modes at the launch.

However, the Stuart reference concerns the use of multiple modes in a fibre having RF-frequency transmissions to transmit multiple streams of data in parallel. See, e.g., Stuart at FIG. 4. In contrast, Cunningham teaches the use of offset launch to restrict the modes launched into the fibre. See, e.g., Cunningham at col. 3, ln. 5–10. If one were to combine the offset launch taught by Cunningham with the multimode transmissions of Stuart, several of the modes utilized by Stuart would be reduced or rendered inoperative, and Stuart would be rendered unsuited for its intended purpose. Accordingly, the proposed combination of Stuart and Cunningham is improper as a matter of law.

Moreover, the claims on their face require a radio-frequency modulated signal transmitted over a multimode optical fibre. The application discusses, for example, signals at 2 GHz. See Application at p. 8, ln. 6–10. These signals are far outside the baseband frequencies of a multimode fibre, and the prior art has addressed this problem by frequency downconversion into the fibre's baseband frequencies. See Application at p. 2, ln. 2–20.

The Cunningham reference deals with baseband frequencies, i.e., the transmission of information using frequencies from 0 Hz to the highest frequency in the signal having significant power. Cunningham discusses increasing the baseband bandwidth of a multimode fibre beyond its over-filled launch bandwidth using an offset launch. See Cunningham at col. 2, ln. 14–16, col. 3, ln. 3–4, 15–17. As Cunningham concerns baseband transmissions, one of ordinary skill in the art, faced with the problem of transmitting RF-modulated signals through a multimode fibre, would not have a reasonable expectation of success of utilizing the offset launch technique as disclosed in Cunningham.

For these reasons, the proposed combination of Stuart and Cunningham is improper, and all of pending claims are patentable over this improper combination.

CONCLUSION

In light of the foregoing, we respectfully submit that each of the pending claims is in condition for allowance. Accordingly, we respectfully request reconsideration, withdrawal of all grounds of rejection, and the allowance of all pending claims in due course.

If the Examiner believes that a telephone conversation with the Applicant's attorney would be helpful in expediting the allowance of this application, the Examiner is invited to call the undersigned at the number identified below.

Respectfully submitted,

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